

FRAME FOR PRESSURIZED FLUID APPARATUS

Field of the Invention

This invention relates to pressure washers. More specifically, the invention relates to

- 5 a frame for supporting a pressure washer.

Background of the Invention

Pressure washers include an engine coupled to a support frame. The frame is usually configured for movement, such as by the addition of wheels. The frame also may have the
10 ability to hold a spray gun, wand, hose, and other accessories for use with the pressure washer. The frame is usually made of metal and is often heavy, angular, and very industrial looking. It is desirable to produce a frame for a pressure washer that is durable, easy to move, is able to store the accessories for use with the pressure washer, and has a more consumer-friendly look.

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Summary of the Invention

The present invention provides an integrally formed one-piece frame for an apparatus that supplies a pressurized fluid. One construction of the frame includes a base that supports a power unit. The frame further includes at least one leg that supports the base on a surface.

- 20 The frame also includes a handle that is used to move the frame from a first location to a second location.

In one embodiment, the base includes at least one integral reinforcing rib. In another embodiment, the base includes an aperture therein for receiving a portion of the power unit.

- 25 In another embodiment, the at least one leg includes a support that engages the surface and that defines a footprint of the frame, and wherein the handle has an upper end that defines a width such that the width of the upper end is less than the footprint. In another embodiment,

the handle also includes an integral accessory holder. In another embodiment, the handle includes a pair of downwardly extending support members that form an acute included angle with the base in the XY-plane. In another embodiment, the handle includes a pair of downwardly extending support members that form an acute included angle with the base in

5 the YZ-plane. In another embodiment, the frame is stackable.

Another construction of the invention provides for an integrally formed one-piece frame for an apparatus that supplies a pressurized fluid that includes a base that supports a power unit. The frame also includes a first base support member integrally formed with the base that supports the base on a surface, and a second base support member integrally formed

10 with the base that supports the base on a surface. The frame also includes a side panel integrally formed with and extending between the first and second base support members. The frame further includes an integrally formed handle.

Another construction of the invention provides an integrally formed one-piece frame for an apparatus that supplies a pressurized fluid including a base that supports a power unit.

15 The frame also includes at least one base support member integrally formed with the base that supports the base on a surface. The frame further includes a handle integrally formed as one piece with the base. The handle includes an upper end, a first member defining a first axis, and a second support member defining a second axis. The first and second axes each form an acute angle with the upper end of the handle in the XY-plane.

20 Further constructions and advantages of the present invention, together with the organization and manner of operation thereof, will become apparent from the following detailed description of the invention when taken in conjunction with the accompanying drawings, wherein like elements have like numerals throughout the drawings.

Brief Description of the Drawings

The present invention is further described with reference to the accompanying drawings, which show some embodiments of the present invention. However, it should be noted that the invention as disclosed in the accompanying drawings is illustrated by way of example only. The various elements and combinations of elements described below and illustrated in the drawings can be arranged and organized differently to result in embodiments which are still within the spirit and scope of the present invention.

FIG. 1 is a perspective view of a frame for a pressure washer embodying the present invention;

FIG. 2 is a perspective view of the frame of FIG. 1 including accessories for the pressure washer;

FIG. 3 is a top view of the frame of FIG. 1;

FIG. 4 is a bottom view of the frame of FIG. 1;

FIG. 5 is a rear view of the frame of FIG. 1; and

FIG. 6 is a side view of a stack of three of the frames of FIG. 1.

Detailed Description

FIG. 1 illustrates a frame 10 embodying aspects of the present invention. The frame 10 is an integrally formed one-piece frame 10 for an apparatus that supplies a pressurized fluid, such as a pressure washer. In the illustrated embodiment, the frame 10 is injection molded of a material having suitable strength to support a pressure washer, such as nylon six or polypropylene. It is understood that other suitable materials, such as ABS plastic or other plastics, may also be used. It is further understood that in other embodiments, the frame 10 may be made by other processes, such as blow molding, rotational molding, or stamping.

As illustrated in FIG. 1, the frame 10 defines three geometric planes defined by the X-axis, Y-axis, and Z-axis, respectively. The X-axis defines the width of the frame 10, the Y-axis defines the height of the frame 10, and the Z-axis defines the depth of the frame 10 (i.e., into and out of the page when looking at the front of the frame 10).

5 The frame 10 includes a base 14 that is adapted to support a power unit, such as an engine 18 for the pressure washer (see FIG. 2). In the illustrated embodiment, the base 14 includes an aperture 22 therein for receiving a portion of the engine 18. It is understood that in some embodiments, such as the embodiment shown in FIGS. 1 and 3, a mounting plate 26 is molded into the base 14 surrounding the aperture 22 to assist in supporting the engine, and
10 in bolting the engine 18 to the frame 10. The base 14 also includes at least one reinforcing rib 30 integrally formed with the base (see FIG. 4). As shown in the illustrated embodiment, four reinforcing ribs 30 are molded with the base 14 to increase the strength of the base 14, though it is understood that in other embodiments, any number of ribs 30 may be used. It is further understood that in other embodiments, the base 14 may not include any reinforcing
15 ribs. The use of the mounting plate 26 and the ribs 30 is largely dependent on the thermal properties of the frame material.

The frame 10 also includes a plurality of base support members integrally formed as one piece with the base 14 that support the frame 10 on a surface, such as the floor. The base support members are illustrated as first, second, third, and fourth legs 34A, 34B, 34C, and
20 34D, respectively. It is understood that in other embodiments (not shown), the base support members may include fewer than or more than four legs, and that in some embodiments, the base support member consists of a single leg 34 molded as one piece with the frame 10 extending downwardly from the base 14.

As shown in FIG. 5, the legs 34 (with legs 34C and 34D illustrated in FIG. 5) form
25 obtuse included angles A, B, respectively, with the base 14 in the XY-plane. As shown in

FIG. 1, the legs 34 also form obtuse included angles with the base in the YZ-plane, as illustrated by the angle G between the base 14 and the second leg 34B. Each leg 34A-D includes a support 38A-D that engages the surface. As shown in the illustrated embodiment, each support 38A-D includes an aperture 40A-D therein capable of receiving a wheel or 5 caster to allow for rolling movement of the frame 10, or a footpiece made of plastic or other material to allow for sliding movement of the frame 10.

With reference to FIG. 3, the supports 38A, 38B, 38C, and 38D define a generally rectangular footprint 42 of the frame 10, shown in shadow in FIG. 3. The footprint 42 includes a width W1. It is understood that in other embodiments, the footprint 42 may have a 10 non-rectangular shape, such as circular.

The frame 10 also includes a side panel 46 integrally formed with and extending between the legs 36B, 36C. The side panel 46 assists in strengthening and balancing the frame 10 when the frame 10 is supported on the surface. The frame 10 also includes a second side panel 50 integrally formed with and extending between the legs 36A, 36D. In some 15 embodiments, the frame 10 also includes an integrally formed front panel 54 (shown in shadow in FIG. 1) that is operable to display indicia about the pressure washer, such as the brand name of the pressure washer and/or the pressure of the fluid output by the pressure washer.

The frame 10 further includes a handle 58 integrally formed as one piece with the 20 base 14. The handle 58 is angled with respect to the base 14 in the YZ-plane and forms an acute included angle H with the base 14. With reference to FIG. 5, the handle 58 includes a pair of downwardly extending support members 62, 66 that define a first axis 70 and a second axis 74, respectively. Each of the first and second axes 70, 74 form acute included angles C, D, respectively, with the base 14 in the XY-plane. As illustrated, the support members 62, 66

are contiguous with the first leg 34A and second leg 34B. It is understood that in other embodiments, the support members 62, 66 are parallel to at least one of the legs 34.

The handle 58 also includes an upper end 78 having a width W2. As illustrated in FIG. 5, the first and second axes 70, 74 form acute included angles E, F, respectively, with 5 the upper end 78 of the handle 58 in the XY-plane. As is best shown in FIG. 4, the upper end 78 also includes a plurality of grip ridges 80 integrally formed thereon to assist a user in gripping the handle 58 to move the frame 10 from a first location to a second location.

An integrally formed accessory holder 82 is also located near the upper end 78 on the handle 58. The accessory holder 82 is adapted to store the various accessories that may be 10 used with the pressure washer when those accessories are not in use. With reference to FIGS. 1 and 2, the accessory holder 82 includes a first aperture 86 sized to receive a gun 90 for use with the pressure washer. The accessory holder of FIG. 2 also includes a second aperture 94 and third aperture 98 sized to receive wands 102, 106 that are coupled to the gun 90. As shown, the wands 102, 106 each include a nozzle 110, 114, respectively. The nozzle 110 is a 15 nozzle known as a high/low nozzle in the art. The nozzle 110 is moved axially to change the water pressure coming out of the nozzle and can also be rotated to change the width of the water spray from the nozzle 110. The nozzle 114 is a conical shaped nozzle known in the art as a turbo nozzle that outputs a rotating circular spray pattern. It is understood that the accessory holder may also be adapted to hold a standard set of non-adjustable nozzles that are 20 commonly sold with pressure washers by including additional apertures in the accessory holder 82, or by varying the size of the first, second, and third apertures 86, 94, 98. The accessory holder 82 also functions to hold a hose 118 that is coupled to the pressure washer.

With reference to FIG. 6, the frame 10 is stackable before the engine 18 is coupled to the base 14. With reference also to FIG. 5, the width W2 of the upper end 78 of the handle 25 58 is less than the width W1 of the footprint 42. Because the width W2 is less than the width

W1, the angles A, B are obtuse with respect to the base 14 in the XY-plane and the angles E, F are acute with respect to the upper end 78 in the XY-plane. This allows the legs 34A-D of a second frame 10b to slide over the handle 58 and legs 34A-D of the first frame 10a, and the legs 34A-D of a third frame 10c to slide over the handle 58 and legs 34A-D of the second frame 10b. The rearward angle H of the handle 58 in the YZ-plane stabilizes the weight of the frame 10 and allows the stacking of the frames 10a, 10b, 10c without the frames tipping over.

Various features of the invention are found in the following claims.